



Docket No.: NY-KIT 404-US  
(PATENT)

**Appeal Brief**

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Dated: 10/13/10

Signature: Fani Malikouzakis

(Fani Malikouzakis)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Masaki Hashimoto et al.

Application No.: 10/561,622

Confirmation No.: 9658

Filed: June 18, 2004

Art Unit: 3643

For: PLANT CULTIVATING BASE BODY AND  
METHOD OF MANUFACTURING THE SAME

Examiner: S. T. Nguyen

**APPEAL BRIEF**  
**(37 C.F.R. § 41.37)**

MS Appeal Brief – Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to the Notice of Appeal of April 14, 2010 filed in this case, applicants now submit their Brief on Appeal, together with a Petition for an Extension of 4 months.

The fees required under 37 C.F.R. § 41.20(b)(2), and any required petition for extension of time for filing this brief and fees therefor, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1206:

- I. Real Party In Interest
- II. Related Appeals and Interferences
- III. Status of Claims

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- IV. Status of Amendments
- V. Summary of Claimed Subject Matter
- VI. Grounds of Rejection to be Reviewed on Appeal
- VII. Argument
- VIII. Claims Appendix
- IX. Evidence Appendix
- X. Related Proceedings Appendix

**I. REAL PARTY IN INTEREST**

The real party in interest for this appeal is **SUNTORY HOLDINGS LIMITED**.

**II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS**

To the best of the knowledge of the appellant, appellant's representative, and assignee, there are no prior or pending appeals, interferences, or judicial proceedings which may be related to directly affect, or be directly affected by or have a bearing on the Board's decision in this appeal.

### **III. STATUS OF CLAIMS**

A. Total Number of Claims in Application

There are 17 claims pending in application.

B. Current Status of Claims

1. Claims canceled: 1-10
2. Claims withdrawn from consideration but not canceled: 0
3. Claims pending: 11-27
4. Claims allowed: 0
5. Claims rejected: 11-27

C. Claims On Appeal

Claims 11-27 are pending and are finally rejected. The rejection of all of these claims is appealed.

Previously presented claims 1-10 have been canceled. A Restriction Requirement had been made, dividing claims 11-20 and 21-27, but this was withdrawn.

**IV. STATUS OF AMENDMENTS**

Applicants submitted a response following final rejection, but did not set forth any amendments therein.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

Claims 11 and 21 are the only independent claims involved in the current appeal.

The invention defined by claim 11 is a plant cultivating substrate. This is formed by reacting a water retentive filling material, water, a urethane prepolymer and a polyol. Page 3, lines 16-20, for example, describe this product. Also note page 5, lines 4-9 of the specification. Exemplary materials are set forth at page 19, lines 7-8 (peat moss as water retentive material); urethane polymer at page 19, lines 13-20, and polyol at page 19, lines 21-25.

Claim 21 defines a process for manufacturing plant cultivating substrates, whereby the filling material, water, urethane polymer and polyol are reacted. The water retentive filling material is under dry conditions, from 15-60% by weight of the plant cultivating substrate.

See, e.g., page 3, lines 20-22 for the 15-60% range of the filling material in the plant cultivating substrate. Also, note page 3, line 30 – page 4, line 2 of the specification. Page 5, lines 10-14 also describe this claimed invention.

**VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

All outstanding grounds of rejection are to be revised on appeal. These are:

A) The Rejection of Claims 11, 15, 16, and 19 under 35 U.S.C. § 102(b) as allegedly anticipated by Kistner, RE 32 476;

B) The Rejection of Claims 12-14, 17, 18, and 20-27 under 35 U.S.C. § 103 as obvious over Kistner, RE 32 476.



## VII. ARGUMENT

### A. **The Rejection of Claims 11, 15, 16, and 19 Under 35 U.S.C. § 102(b)**

Claims 11, 15, 16, and 19 are product by process claims. The plant cultivating substrate is obtained by reacting the filling material, water, urethane prepolymer and polyol. The four components are all mixed together, as is explained at, e.g., page 13 of the specification.

Such, however, is not the case in the Kistner reference. According to Kistner, a urethane prepolymer is made “by reacting a material having a plurality of active hydrogen atoms, such as polyols, with an amount of organic polyisocyanate or polyisothiocyanate in excess of stoichiometry.” See, e.g., column 2, lines 36-45. Column 3, line 50 et seq goes on to discuss the polyol precursors that are useful in making prepolymers. The prepolymers are used, with water and aggregate, as column 6, line 21 et seq. explain. Example 1 of Kistner describes the reaction of polyoxyethylene diol with tolylene diisocyanate, to produce a urethane prepolymer. Then, at Example 2, the prepolymer, without polyol, is added to sand and water.

Generally, the urethane prepolymer reacts with water, whereby self foaming occurs with the discharge of carbon dioxide gas (CO<sub>2</sub>). The reaction between the urethane prepolymer and water produces amine and the produced amine further reacts with the isocyanate group of the urethane prepolymer, so that elongation of the polymer chain occurs to form urethane sponge.

In the case of the invention defined by claim 11, urethane prepolymer, water-retentive filling material and water are reacted in the presence of polyol. As explained, supra, the urethane prepolymer has high reactivity with water and the amine produced from this reaction also has higher reactivity than polyol, so the elongation of polymer chain due to the foaming reaction between the urethane prepolymer and water occurs predominantly; however, when the polyol is present in this forming process of this urethane sponge, at least a portion of the polyol is involved in this reaction, thus contributing to the polymer chain elongation. In this case, as the polyol has lower reactivity than the amine produced from the reaction between urethane prepolymer and water, there is a difference in the elongation velocity between the polymer chain

produced by the reaction of polyol, and the polymer chain produced from the reaction of amine. This velocity difference leads to non-uniformity in the membrane of pores (cells) produced by the foaming of the urethane sponge produced, whereby eruption of the membrane occurs from the weaker spots, thus establishing communication with adjacent pores. Thus, the resultant plant cultivating substrate has greater number of pores which communicate with each other. Such as, substrate having a large number of pores which communicate with each other, absorbs a greater amount of water via capillarity, the water absorbency or absorbent efficiency is improved dramatically. On the other hand, in the case of Kistner, as no polyol exists at the time of the substrate producing reaction, no such non-uniformity of cell membrane occurs, hence, no eruption of membrane occurs for establishing communication between adjacent pores. As a result, in the Kistner's substrate, the pores are present independently of each other," i.e., are not in communication with each other.

Granted, there are no comparative results present, but there need not be. A reaction between the prepolymer and polyol is to be expected, creating a product that cannot be present if no starting material is present.

The Examiner insists, however, that:

“Even though the polyol is pre-made/mix with the urethane polymer in another step, when all ingredients are combined, they are all mixed together to create the substrate.”

This, however, ignores what the reference teaches. First, as has been noted, supra according to Kistner, the prepolymers are made by combining polyisocyanate or polyisothiocyanate with polyol, where “The equivalent ratio of isocyanate moiety, -NCO, to active hydrogen (from the polyols), “will be at least 2/1... and can be as high as 4/1 or even higher.” Given this difference in stoichiometric ratios, there is no polyol remaining. Hence, the Examiner's statement is not correct. No polyol is mixed together with prepolymer, water and substrate in Kistner. Applicants again draw attention to Example 1 of Kistner. Example 1 describes the making of a prepolymer, and in Example 2, the prepolymer, without reactive polyol, is added to peat moss, vermiculite and water.

For anticipation to lie, every feature of the claimed invention must be described. Polyol and urethane prepolymer will react. A product will result that is not present when the polyol is not added to the prepolymer. As such, the product defined by claim 11, and hence claims 15, 16, and 19, cannot be said to be described by Kistner and the rejection should be reversed.

**B. The Rejection of Claims 12, 13, 14, 17, 18, and 20-27 under 35 U.S.C. § 103**

Claims 12-14, 17, 18, and 20 are product by process claims, while claims 21-27 are method claims.

With respect to claims 12-14, 17, 18, and 20, the Examiner asserts, essentially that the features claimed, while not taught by Kistner, are matters of obvious design choice.

In response, applicants note that, even assuming this is true (which they do not concede), the modifications would be to a product not described by the reference. As such, the obviousness rejection of the product claims should be reversed, as it has no relationship to what is claimed.

Turning to the method claims, i.e., claims 21-27, the Examiner again focuses on what are asserted to be matters of obvious design choice, but misses the point of the claims.

Claim 21 calls for “reacting and curing” four separate items. Such is not taught or suggested by Kistner. As has already been pointed out, supra, Kistner pre-reacts polyols before adding the reaction product to the water and aggregate material. This is in direct contrast to, e.g., the subject matter of claim 21 where polyol is added to the other materials. As the cited reference lacks any suggestion of the required reaction step, the obviousness rejection should be reversed.

In view of the foregoing, it is believed that both the rejection of claims 11, 15, 16, and 19 under 35 U.S.C. § 102(b), and the rejection of claims 12-14, 17, 18, and 20-27 under 35 U.S.C. § 103, both in view of Kistner, are not proper and should be reversed.

**VIII. CLAIMS APPENDIX**

A copy of the claims involved in the present appeal is attached hereto as Appendix A.

**IX. EVIDENCE APPENDIX**

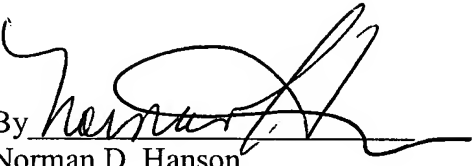
No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

**X. RELATED PROCEEDINGS APPENDIX**

No related proceedings are referenced in II. above, hence copies of decisions in related proceedings are not provided.

Dated: 10/13/10

Respectfully submitted,

By 

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**APPENDIX A**

**CLAIMS APPENDIX**  
**(37 C.F.R. § 41.37(C)(VIII))**

11. A plant cultivating substrate produced by reacting:  
a water-retentive filling material, water, urethane prepolymer and a polyol under conditions which form a plant cultivating substrate.
12. The plant cultivating substrate of claim 11, wherein said water retentive filling material under dry conditions is from 15 to 60 wt. % of said plant cultivating substrate.
13. The plant cultivating substrate of claim 11, wherein said polyol contains an ester group.
14. The plant cultivating substrate of claim 11, wherein the polyol is present in an amount of from 0.1 to 300 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions.
15. The plant cultivating substrate of claim 11, wherein said urethane prepolymer contains an isocyanate group.
16. The plant cultivating substrate of claim 15, wherein said urethane prepolymer is formed by reacting toluene diisocyanate with a polyol.
17. The plant cultivating substrate of claim 11, wherein said urethane prepolymer is present in an amount of from 50 to 300 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions.
18. The plant cultivating substrate of claim 17, wherein said urethane prepolymer is present in an amount of from 120 to 200 weight parts relative to 100 weight parts of the water-retentive filling material under dry conditions.

19. The plant cultivating substrate of claim 11, wherein said water-retentive filling material comprises: peat moss, coco peat, sawdust, coconut husk, chaff, chaff compost, bark compost, perlite, vermiculite, or hydrophilic foam resin pulverized powder.
20. The plant cultivating substrate of claim 11, wherein the substrate has water absorptivity of from 25% to 75% by weight relative to the weight of said plant cultivating substrate, hardness of from 20N to 40N, and restoring force of from 4N to 10N.
21. A method of manufacturing a plant cultivating substrate comprising reacting and curing (i) a water-retentive filling material, (ii) water, (iii) a urethane prepolymer and (iv) a polyol, wherein said water-retentive filling material under dry conditions is from 15 to 60 wt. % of said plant cultivating substrate.
22. The method of claim 21 comprising the steps of:
  - (i) mixing the water-retentive filling material with said water to form a first suspension,
  - (ii) adding said urethane prepolymer and said polyol to said first suspension and mixing to form a second suspension,
  - (iii) reacting and curing said second suspension to obtain the plant cultivating substrate.
23. The method of claim 21, wherein said polyol is present in an amount of from 0.1 to 300 weight parts relative to 100 weight parts of said water-retentive filling material under dry conditions.
24. The method of claim 21, wherein said polyol contains an ester group.
25. The method of claim 21, wherein said reacting and curing takes place in a substrate forming mold having a top and a bottom.
26. The method of claim 25, wherein said manufacturing is effected such that an upper face of the plant cultivating substrate is located on the bottom of said substrate forming mold.



27. The method of claim 21, wherein said water- retentive filling material comprises: peat moss, coco peat, sawdust, coconut husk, chaff, chaff compost, bark compost, perlite, vermiculite, or hydrophilic foam resin pulverized powder.

**APPENDIX B**

**EVIDENCE APPENDIX**

None.

**APPENDIX C**

**RELATED PROCEEDINGS APPENDIX**

None.